ABSTRACT

The present invention generally relates to luminescent and/or optically absorbing compositions and/or precursors to those compositions, including solid films incorporating these compositions/precursors, exhibiting increased luminescent lifetimes, quantum yields, enhanced stabilities and/or amplified emissions. The present invention also relates to sensors and methods for sensing analytes through luminescent and/or optically absorbing properties of these compositions and/or precursors. Examples of analytes detectable by the invention include, but are not limited to, electrophiles, alkylating agents, thionyl halides, and phosphate ester groups including phophoryl halides, cyanides and thioates such as those found in certain chemical warfare agents. The present invention additionally relates to devices and methods for amplifying emissions, such as those produced using the above-described compositions and/or precursors, by incorporating the composition and/or precursor within a polymer having an energy migration pathway.